treating said metal borohydride powder with an alkali solution to produce a metal borohydride alkali solution.

14. The process according to claim 13 wherein synthesizing a carrier powder for proton H comprises the steps of:

forming a mixture of a suitable metal that is capable of
forming hydrides with hydrogen with about 10 to 50wt% of a
hydrogen storage alloy;

mechanically pulverizing said mixture;

mechanically mixing the resulting pulverized mixture with
about 10 to 100 wt% of suitable alkali compounds; and
subjecting the resulting mixture to water vapor at less
than one atmosphere for 5 to 48 hours to produce a proton H
carrier powder.

15. The process according to claim 13 wherein synthesizing a carrier powder for proton H comprises the steps of:

forming a mixture of a suitable metal with about 1 to 10

wt% carbon black coated with a metal selected from the group

consisting of platinum, palladium and mixtures and alloys

thereof; and

mechanically pulverizing said mixture.

16. The process according to claim 13 wherein bonding hydrogen to said proton H carrier powder comprises subjecting said proton H carrier powder to hydrogen gas at a pressure of about 1 to 50 atmospheres at a temperature from ambient to about 400°C for about 5 to 48 hours so that hydrogen is carried by said carrier powder.

- 17. The process according to claim 13 wherein producing a metal borohydride powder from said proton H carrier powder comprises mixing a suitable quantity of said proton H carrier powder with a non-aqueous metal boron oxide or borax and pulverizing the resulting mixture for about 5 to 48 hours under hydrogen gas at a pressure of about 1 to 50 atmospheres so that a metal borohydride powder is produced.
- 18. The process according to claim 13 wherein treating of said metal borohydride powder with an alkali solution comprises adding said metal borohydride powder to an alkali solution having a concentration of from about 0.1 to 1 wt% to saturate said metal borohydride powder; and

<u>filtering out precipitates, leaving a metal borchydride</u> alkali solution.

19. A process for synthesizing substantially pure metal borides which comprises the steps of:

synthesizing a carrier powder for proton H;
bonding hydrogen to said carrier powder;
producing a metal borohydride powder from said carrier;
dissolving said borohydride powder with a suitable solvent;
filter precipitates; and

evaporate said suitable solvent to leave substantially pure
metal borohydride

20. The process according to claim 19 wherein synthesizing a carrier powder for proton H comprises the steps of:

forming a mixture of a suitable metal that is capable of forming hydrides with hydrogen with about 10 to 50wt% of a hydrogen storage alloy;

mechanically pulverizing said mixture;

carrier powder.

mechanically mixing the resulting pulverized mixture with
about 10 to 100 wt% of suitable alkali compounds; and
subjecting the resulting mixture to water vapor at less
than one atmosphere for 5 to 48 hours to produce a proton H

21. The process according to claim 19 wherein synthesizing a carrier powder for proton H comprises the steps of:

forming a mixture of a suitable metal with about 1 to 10
wt% carbon black coated with a metal selected from the group
consisting of platinum, palladium and mixtures and alloys
thereof; and

mechanically pulverizing said mixture.

- 22. The process according to claim 19 wherein bonding hydrogen to said proton H carrier powder comprises subjecting said proton H carrier powder to hydrogen gas at a pressure of about 1 to 50 atmospheres at a temperature from ambient to about 400°C for about 5 to 48 hours so that hydrogen is carried by said carrier powder.
- 23. The process according to claim 19 wherein producing a metal borohydride powder from said carrier comprises mixing a suitable quantity of said proton H carrier powder with a non-aqueous metal boron oxide or borax and pulverizing the resulting mixture for 5 to 48 hours under hydrogen gas at a pressure of about 1 to 50 at a pressure of up to about 50 atmospheres so that a metal borohydride powder is produced.

24. The process according to claim 19 including forming a substantially pure metal borohydride by the further steps of dissolving said metal borohydride powder into a liquid that can dissolve metal borohydrids;

filtering the resulting solution; and

evaporating the resulting liquid to obtain substantially

pure metal borohydride.

25. The process of synthesizing metal borohydrides which comprises the steps of:

forming a mixture of a metal that is capable of forming hydrides with hydrogen with about 10 to 50wt% of a hydrogen storage alloy;

mechanically pulverizing said mixture;

mechanically mixing the resulting pulverized mixture with about 10 to 100 wt% of suitable alkali compounds;

subjecting the resulting mixture to water vapor at less than one atmosphere for 5 to 48 hours to produce a proton H carrier powder;

subjecting said proton H carrier powder to hydrogen gas at a pressure of about 1 to 50 atmospheres at a temperature from ambient to about 400°C for about 5 to 48 hours so that hydrogen is carried by said carrier powder;

mixing a suitable quantity of said carrier powder with
metal boron oxide or borax and pulverizing the resulting

mixture for 5 to 48 hours under hydrogen gas at a pressure of from about 1 to 50 atmospheres so that a metal borohydride powder is produced;

adding said metal borohydride powder to an alkali solution having a concentration of from about 0.1 to 1 wt% to saturate said metal borohydride powder; and

filtering out precipitates, leaving a metal borohydride alkali solution.

26. The process of synthesizing substantially pure metal borohydride which comprises the steps of:

forming a mixture of a suitable metal that is capable of
forming hydrides with hydrogen with about 10 to 50wt% of a
hydrogen storage alloy;

mechanically pulverizing said mixture;

mechanically mixing the resulting pulverized mixture with about 10 to 100 wt% of suitable alkali compounds;

subjecting the resulting mixture to water vapor at less than one atmosphere for 5 to 48 hours to produce a proton H carrier powder;

subjecting said proton H carrier powder to hydrogen gas at a pressure of about 1 to 50 atmospheres at a temperature from ambient to about 400°C for about 5 to 48 hours so that hydrogen is carried by said carrier powder;